Biochemical Genetics—Volume 22, 1984

A journal for the reporting of original research in biochemical genetics of any organism, from virus to man. Papers will deal with the molecular aspects of genetic variation and evolution, mutation, gene action and regulation, immunogenetics, somatic cell genetics, and nucleic acid function in heredity and development and with the biochemical aspects of genetic defects (provided these are not purely clinical).

Papers on new methods that apply to the above topics will be included.

Review articles will also be published occasionally.

EDITOR

Hugh S. Forrest, Department of Zoology, University of Texas at Austin, Austin, Texas

EUROPEAN EDITOR

D. A. Hopkinson, The Galton Laboratory, London, England

ASSOCIATE EDITORS

C. S. Lee, University of Texas at Austin, Austin, Texas
Charles R. Shaw, University of Texas M. D. Anderson Hospital, Houston, Texas
Richard E. Tashian, University of Michigan, Ann Arbor, Michigan
Allan C. Wilson, University of California, Berkeley, California

C. Baglioni, State University of New York, Albany, New York
L. Beckman, University of Umeå, Umeå, Sweden
G. J. Brewer, University of Michigan, Ann Arbor, Michigan
D. J. Cove, University of Leeds, Leeds, England
C. H. Doy, Australian National University, Canberra, Australia
W. F. Feenstra, University of Groningen, Groningen, The Netherlands
J. R. S. Fincham, University of Edinburgh, Edinburgh, Scotland
W. M. Fitch, University of Wisconsin, Madison, Wisconsin
H. H. Fudenberg, University of South Carolina, Charleston, South Carolina
J. B. Harborne, University of Reading, Reading, England
L. Hood, California Institute of Technology, Pasadena, California
J. J. Hutton, University of Texas Health Science Center, San Antonio, Texas
T. H. Jukes, University of California, Berkeley, California
H. N. Kirkman, University of North Carolina, Chapel Hill, North Carolina
L. I. Korochkin, Institute of Developmental Biology, Moscow, USSR
R. Lewontin, Harvard University, Cambridge, Massachusetts
E. Margoliash, Northwestern University, Evanston, Illinois
K. Paigen, University of California, Berkeley, California
F. H. Ruddle, Yale University, New Haven, Connecticut
J. G. Scandalios, North Carolina State University, Raleigh, North Carolina
D. C. Shreffler, Washington University, St. Louis, Missouri
O. Smithies, University of Wisconsin, Madison, Wisconsin
Z. Šormová, Institute of Organic Chemistry and Biochemistry, Prague, Czechoslovakia
H. E. Sutton, University of Texas at Austin, Austin, Texas
E. Vesell, Pennsylvania State University, Hershey, Pennsylvania
R. P. Wagner, Santa Fe, New Mexico
G. S. Whitt, University of Illinois, Urbana, Illinois
W. J. Young, University of Vermont, Burlington, Vermont

Published bimonthly by Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013. In 1984, Volume 22 (12 issues) will be published. Subscription orders should be addressed to the publisher. *Biochemical Genetics* is abstracted or indexed in Biological Abstracts, Chemical Abstracts, Chemical Titles, Current Awareness in Biological Sciences, Current Contents, Excerpta Medica, Index Medicus, Mental Health Abstracts, Referativnyi Zhurnal, and Science Citation Index.

© 1984 Plenum Publishing Corporation.

Biochemical Genetics participates in the Copyright Clearance Center (CCC) Transactional Reporting Service. The appearance of a code line at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use. However, this consent is given on the condition that the copier pay the flat fee of $3.50 per copy per article (no additional per-page fees) directly to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, Massachusetts 01970, for all copying not explicitly permitted by Sections 107 or 108 of the U.S. Copyright Law. The CCC is a nonprofit clearinghouse for the payment of photocopying fees by libraries and other users registered with the CCC. Therefore, this consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale, nor to the reprinting of figures, tables, and text excerpts. 0006-2928/84 $3.50

Subscription rates:
Volume 22, 1984 (12 issues) $295.00 (outside the U.S., $331.00).
Volume 23, 1985 (12 issues) $325.00 (outside the U.S., $364.00).

Second-class postage paid at New York, N.Y., and at additional mailing offices. Postmaster: Send address changes to *Biochemical Genetics*, Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013.

Printed in U.S.A.

Published bimonthly by Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013. In 1984, Volume 22 (12 issues) will be published. Subscription orders should be addressed to the publisher. *Biochemical Genetics* is abstracted or indexed in Biological Abstracts, Chemical Abstracts, Chemical Titles, Current Awareness in Biological Sciences, Current Contents, Excerpta Medica, Index Medicus, Mental Health Abstracts, Referativnyi Zhurnal, and Science Citation Index. © 1984 Plenum Publishing Corporation. *Biochemical Genetics* participates in the Copyright Clearance Center (CCC) Transactional Reporting Service. The appearance of a code line at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use. However, this consent is given on the condition that the copier pay the flat fee of $3.50 per copy per article (no additional per-page fees) directly to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, Massachusetts 01970, for all copying not explicitly permitted by Sections 107 or 108 of the U.S. Copyright Law. The CCC is a nonprofit clearinghouse for the payment of photocopying fees by libraries and other users registered with the CCC. Therefore, this consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale, nor to the reprinting of figures, tables, and text excerpts. 0006-2928/84 $3.50

OCHEMICAL GENETICS

22, Nos. 1/2, February 1984

TENTS

etic Polymorphism of CON 1 and CON 2 Salivary Proteins Detected by Immunologic and Concanavalin A Reactions on Nitrocellulose with Linkage of *CON 1* and *CON 2* Genes to the SPC (Salivary Protein Gene Complex) 1
Edwin A. Azen and Pao-Lo Yu

rogeneity in the Molecular Basis of Three Types of Hereditary Persistence of Fetal Hemoglobin and the Relative Synthesis of the $^{G}\gamma$ and $^{A}\gamma$ Types of γ Chain 21
A. Kutlar, M. B. Gardiner, M. G. Headlee, A. L. Reese, M. P. Cleek, S. Nagle, P. K. Sukumaran, and T. H. J. Huisman

tional Evidence Implicating *Triticum searsii* as the B-Genome Donor to Wheat 37
J. Nath, James J. Hanzel, James P. Thompson, and James W. McNay

etic Polymorphism and Linkage of the Sixth and Seventh Complement Components (C6 and C7) in the Common Marmoset 51
D. B. Whitehouse

Genetics of Esterases in *Drosophila*. VIII. The Gene Regulating the Activity of JH-Esterase in *D. Virilis* 65
. Y. Rauschenbach, N. S. Lukashina, and L. I. Korochkin

ked, Polymorphic Genetic Variation of Thyroxin-Binding Globulin (TBG) in Baboons and Screening of Additional Primates 81
David H. Lockwood, Dorian H. Coppenhaver, Robert E. Ferrell, and Stephen P. Daiger

me Function and Polymorphism: A Test in Two *Anolis* Lizard Species 89
E. Zouros and Paul E. Hertz

ible Posttranslational Modification, and Its Genetic Control, in Flax Genotroph Isozymes 99
Mary Ann Fieldes and Hugh Tyson

cation and Characterization of Mouse Alcohol Dehydrogenase from Two Inbred Strains That Differ in Total Liver Enzyme Activity 115
Douglas K. Rex, William F. Bosron, and Ting-Kai Li

chol-*O*-Methyltransferase: A Method for Autoradiographic Visualization of Isozymes in Cellogel 125
C. Brahe, N. Crosti, P. Meera Khan, and A. Serra

ence of Inherited Enzyme Activity Variants in Feral Mouse Populations 133
Grahame Bulfield, Jean M. Hall, and Spyros Tsakas

nheritance of Cyanoglucoside Content in *Trifolium repens* L. 139
Monica A. Hughes, Jane D. Stirling, and David B. Collinge

tion in the Biochemical Properties of the *Drosophila* Alcohol Dehydrogenase Allozymes 153
Geoffrey K. Chambers, Ann V. Wilks, and John B. Gibson

norphism of Human Liver Alcohol Dehydrogenase: Identification of ADH_2 2-1 and ADH_2 2-2 Phenotypes in the Japanese by Isoelectric Focusing 169
S.-J. Yin, W. F. Bosron, T.-K. Li, K. Ohnishi, K. Okuda, H. Ishii, and M. Tsuchiya

cular Charge and Electrophoretic Mobility in Cetacean Myoglobins of Known Sequence 181
Tracy McLellan

BIOCHEMICAL GENETICS

Vol. 22, Nos. 3/4, April 1984

CONTENTS

Isolation of Thymidine Kinase-Deficient Rat Hepatoma Cells by Selection with Bromodeoxyuridine, Hoechst 33258, and Visible Light
A. M. Killary, T. G. Lugo, and R. E. K. Fournier

†Genetics of the Clam *Mercenaria Mercenaria*. I. Mendelian Inheritance of Allozyme Variation
Laura Adamkewicz, Stephan R. Taub, and J. R. Wall

†Genetic Variation in Red-Cell Adenosine Deaminase and Glucosephosphate Isomerase in a Laboratory Colony of the Marsupial *Sminthopsis crassicaudata* (Gould)
R. M. Hope, J. H. Bennett, C. M. Chesson, and M. Adams

Molecular Analysis of the Effects of the *lys 3a* Gene on the Expression of *Hor* Loci in Developing Endosperms of Barley (*Hordeum vulgare* L.)
M. Kreis, P. R. Shewry, B. G. Forde, S. Rahman, M. B. Bahramian, and B. J. Miflin

Genetic Variation in Restriction Patterns Among Mouse Amylase Gene Complexes
Karl K. Thomsen, J. Peter Hjorth, and J. Tønnes Nielsen

Biochemical Diversity and Evolution in the Genus *Mus*
François Bonhomme, Josette Catalan, Janice Britton-Davidian, Verne M. Chapman, Kazuo Moriwaki, Eviatar Nevo, and Louis Thaler

Histidine Decarboxylase Phenotypes of Inbred Mouse Strains: A Regulatory Locus (*Hdc*) Determines Kidney Enzyme Concentration
S. A. M. Martin, B. A. Taylor, Takehiko Watanabe, and Grahame Bulfield

Further Genetic Variation at the Esterase Loci of *Drosophila virilis*
Kendo Tsuno, N. T. Aotsuka, and Shigeru Ohba

Genetics of Mitochondrial Glutamate-Oxaloacetate Transaminase (GOT-2) in *Tigriopus californicus*
Mary M. Dill and Ronald S. Burton

A Chinese Hamster Ovary Leucyl-tRNA Synthetase Mutant with a Uniquely Altered High Molecular Weight Leucyl-tRNA Synthetase Complex
Alka Mansukhani, Tom Condon, Arnold Hampel, and Dale L. Oxender

Sequence of the High-Activity Equine Erythrocyte Carbonic Anhydrase: N-Terminal Polymorphism (Acetyl-Ser / Acetyl-Thr) and Homologies to Similar Mammalian Isozymes
Jack R. Jabusch and Harold F. Deutsch

Accumulation of an ABA Analogue in the Wilty Tomato Mutant, *flacca*
W. R. Bowman, R. S. T. Linforth, S. Rossall, and I. B. Taylor

Messenger RNAs Coding for Mouse Major Urinary Proteins Are Differentially Induced by Testosterone
Patricia M. Clissold, Sheila Hainey, and J. O. Bishop

†Note

)CHEMICAL GENETICS

2, Nos. 5/6, June 1984

ENTS

eneral Method for Visualizing Enzymes Releasing Adenosine or Adenosine-5'-Monophosphate 389
hristopher A. Friedrich, Shukti Chakravarti, and Robert E. Ferrell

egulation of Testicular Luteinizing Hormone Receptors in Hypogonadal (*hpg/hpg*) Mice 395
. Amador, T. Parkening, W. Beamer, A. Bartke, and T. J. Collins

s of *Neurospora* Nuclease Halo (*nuh*) Mutants on Secretion of Two Phosphate-Repressible Alkaline Deoxyribonucleases 403
E. Käfer and G. R. Witchell

nerited Variant of Mouse *sn*-Glycerol-3-Phosphate Dehydrogenase Detected by Isoelectric Focusing: Genetical and Biochemical Analyses 419
Walter Pretsch and Daniel J. Charles

mosome Mapping in Cattle Using Mouse Myeloma/Calf Lymph Node Cell Hybridomas 429
A. R. Dain, E. M. Tucker, R. A. Donker, and S. W. Clarke

ted Differences in Mouse Kidney Carnosinase Activity 441
F. L. Margolis and M. Grillo

elective Amplification of Ribosomal DNA Repeat Units in Compensating Genotypes of *Drosophila melanogaster* 453
K. E. Kalumuck and J. D. Procunier

ion of Unselected Mutants of Alkaline Phosphatase in *Escherichia coli* Through Nitrosoguanidine Comutation and Comparison with Natural Variants 467
Francisco del Castillo and Enrique Cerdá-Olmedo

tics of Three Esterase Loci in *Anopheles stephensi* Liston 483
T. Adak, Sarala K. Subbarao, and V. P. Sharma

Alcohol Dehydrogenase Genes in Wild and Cultivated Barley: Characterization of the Products of Variant Alleles 495
A. D. Hanson and A. H. D. Brown

netic Component in Human Lysosomal Enzyme Excretion 517
Kenneth Paigen, Janice Peterson, and Elizabeth Ward

Purification and Biochemical Properties of Alcohol Dehydrogenase—"Fast (Chateau Douglas)" from *Drosophila melanogaster* 529
G. K. Chambers

Existence of LSP-1β^S in *Drosophila melanogaster* Natural Populations in Two Northern States 551
M. T. Band, R. N. Band, and P. T. Ives

norphism of Rat Seminal Vesicle Secretory Proteins: Characterization of svp-1 and svp-2 and Their Identification with the Major Secretory Proteins IV and V 567
. Maffei, G. Paonessa, P. Abrescia, S. Metafora, and J. Guardiola

nce for X Linkage of the Mouse Tear Protein System-3 (*Mtp-3*) with Mosaic Expression in Heterozygous Females 577
Y. Matsushima, T. Imai, and S. Ikemoto

E

BIOCHEMICAL GENETICS

Vol. 22, Nos. 7/8, August 1984

CONTENTS

Linkage Studies on α-Glycerophosphate and Isocitrate Dehydrogenases in *Aedes albopictus* (Diptera: Culicidae)
Takeo Tadano

Genetic Considerations in the Effects of Ethanol in Mice. II. A *trans*-Acting Inducibility Regulator(s) Affecting Alcohol Dehydrogenase (ADH) Activity
Caroline H. Wang and Shiva M. Singh

Enzyme Markers in Inbred Rat Strains: Genetics of New Markers and Strain Profiles
Mark Adams, Peter R. Baverstock, Christopher H. S. Watts, and George A. Gutman

Catalytic Properties of Alcohol Dehydrogenase Isozymes Specified by Duplicate Genes in the Diploid Plant *Stephanomeria exigua*
M. L. Roose

A Structural Gene (*Hdc-s*) for Mouse Kidney Histidine Decarboxylase
S. A. M. Martin and Grahame Bulfield

Multiple Gene Action Determining a Mouse Salivary Protein Phenotype: Identification of the Structural Gene for Androgen Binding Protein (Abp)
Stephen R. Dlouhy and Robert C. Karn

Genetic Structure of Natural Populations of the Red-Spotted Newt, *Notophthalmus viridescens*
Robert B. Merritt, Wendy Hoffman Kroon, Deborah A. Wienski, and Karen A. Vincent

Variation Among Chicken Stocks in the Fractional Rates of Muscle Protein Synthesis and Degradation
Y. Maeda, K. Hayashi, S. Toyohara, and T. Hashiguchi

Pleiotropic Mutants of Chinese Hamster Cells with Altered Cytidine 5′-Triphosphate Synthetase
Ernest H. Y. Chu, John D. McLaren, I-Chian Li, and Barbara Lamb

The Kinetics and Feedback Inhibition of Cytidine 5′-Triphosphate Synthetase in Wild-Type and Mutant Chinese Hamster Cells
John D. McLaren and Ernest H. Y. Chu

Zein Synthesis in the Embryo and Endosperm of Maize Mutants
Lisa Lee and C. Y. Tsai

Distorted Segregation and Linkage of Alcohol Dehydrogenase Genes in *Camellia japonica* L. (Theaceae)
Jonathan F. Wendel and Clifford R. Parks

Structural Homology Between *Drosophila melanogaster* and *Escherichia coli* Acidic Ribosomal Proteins
W. Yean Chooi, Linda M. Sabatini, and Michael Macklin

OCHEMICAL GENETICS

22, Nos. 9/10, October 1984

TENTS

ase-23 (ES-23): Characterization of a New Carboxylesterase Isozyme (EC 3.1.1.1) of the House Mouse, Genetically Linked to ES-2 on Chromosome 8 769
Otto H. von Deimling

titative Analysis of the Amount of Larval Serum Protein-1 (LSP-1) Synthesized by Flies with Different Doses of the LSP-1 Coding Sequences 783
David B. Roberts, Sarah A. Blackwell, and Susan A. R. Loughlin

hol Dehydrogenase from *Drosophila funebris* and *Drosophila immigrans:* Molecular and Evolutionary Aspects 797
LI. Vilageliu and R. González-Duarte

morphism of Alcohol Dehydrogenase in *Arabidopsis thaliana* (L.) Heynh.: Genetical and Biochemical Characterization 817
Rudy Dolferus and Michel Jacobs

cular Characterization of Fetal Antigens on Red Blood Cells of Chickens, Japanese Quail, and Quail-Chicken Hybrids 839
R. R. Dietert, D. P. Hartwell, K. Kline, and B. G. Sanders

rogeneity of *Es-1* Esterases in the Rabbit *(Oryctolagus cuniculus)* 853
H. Bellen, A. Van de Weghe, Y. Bouquet, and L. F. M. Van Zutphen

rences of Frequency Distributions of Plasminogen Phenotypes Between Japanese and American Populations: New Methods for the Detection of Plasminogen Variants 871
Nobuo Aoki, Keiko Tateno, and Yoichi Sakata

riction Fragment Length Polymorphism in the 3′ Flanking Region of the Rabbit β_1-Globin Gene 883
Piero Masina, Andrea Rando, and Sergio Cocozza

age of *Diabetes Insipidus* and *Agouti* Genes in the Rat 893
Viktor Stolc

ynthesis of Cat Hemoglobins: Translation of Poly(A)-RNA from Animals of Various HbA/HbB Phenotypes 901
Jane Kasten-Jolly and Fumito Taketa

l Carbonic Anhydrase *(Car-2)* Allele in Spanish Mice 913
J. Barry Whitney III

somal RNA Contents of Maize Genotypes with Different Ribosomal RNA Gene Numbers 923
P. J. Buescher, R. L. Phillips, and R. Brambl

rences in Tissue Expressions of Enzyme Activities in Interspecific Sunfish (Centrarchidae) Hybrids and Their Backcross Progeny 931
Manijeh Pasdar, David P. Philipp, Waheed A. Mohammad, and Gregory S. Whitt

nit Hybridization and Immunological Studies of Duplicated Phosphoglucose Isomerase Isozymes 957
R. C. Higgins and L. D. Gottlieb

BIOCHEMICAL GENETICS

Vol. 22, Nos. 11/12, December 1984

CONTENTS

Biochemical Genetics of Aldehyde Dehydrogenase Isozymes in the Mouse: Evidence for Stomach- and Testis-Specific Isozymes
Peter B. Mather and Roger S. Holmes

Human Platelet Phenol Sulfotransferase: Familial Variation in Thermal Stability of the TS Form
Jon Van Loon and Richard M. Weinshilboum

Acetaldehyde Utilization and Toxicity in *Drosophila* Adults Lacking Alcohol Dehydrogenase or Aldehyde Oxidase
J. R. David, K. Daly, and J. Van Herrewege

†The Relationship Between α-Amylase Species Found in Developing and Germinating Wheat Grain
M. D. Gale and C. C. Ainsworth

A Regulatory Locus, *Hdc-e,* Determines the Response of Mouse Kidney Histidine Decarboxylase to Estrogen
S. A. M. Martin and Grahame Bulfield

The *Pk-3* Gene Determines Both the Heart, M_1, and the Kidney, M_2, Pyruvate Kinase Isozymes in the Mouse; And a Simple Electrophoretic Method for Separating Phosphoglucomutase-3
Josephine Peters and Sandra J. Andrews

Genetic Polymorphisms of Pe and Po Salivary Proteins with Probable Linkage of their Genes to the Salivary Protein Gene Complex (SPC)
Edwin A. Azen and Pao-Lo Yu

An Estimation of the Degree of the Genetic Divergence of Sibling Species *Microtus arvalis* and *Microtus subarvalis* (*Rodentia*) Based on Electrophoretic Analysis
S. M. Zakijan, N. A. Kulbakina, O. L. Serov, M. N. Meyer, and A. A. Zharkikh

Genetic Variants of Protease Inhibitors Against Fungal Protease and α-Chymotrypsin from Hemolymph of the Silkworm, *Bombyx mori*
M. Eguchi, K. Ueda, and M. Yamashita

A New Pyruvate Kinase Mutation with Hyperactivity in the Mouse
Daniel J. Charles and Walter Pretsch

Esterase-26 (ES-26): Characterization and Genetic Location on Chromosome 3 of an Eserine-Sensitive Esterase of the House Mouse (*Mus musculus*)
Otto H. von Deimling, Bernd Wassmer, and Margot Müller

Phylogenetical and Ontogenetical Studies on the Molecular Weight Heterogeneity of Bovine Serum Transferrin
Soichi Tsuji, Hideaki Kato, Yasuhiro Matsuoka, Toyokazu Fukushima, Iwao Nanjoh, Takashi Amano, and Takao Namikawa

Molecular Weight Heterogeneity of Bovine Serum Transferrin
Soichi Tsuji, Hideaki Kato, Yasuhiro Matsuoka, and Toyokazu Fukushima

Influence of *B* and *Pl* on UDPG:Flavonoid-3-*O*-Glucosyltransferase in *Zea mays* L.
A. G. M. Gerats, J. Bussard, E. H. Coe, Jr., and R. Larson

†A Lymphocyte Cell Line That Makes Serum Cholinesterase Instead of Acetylcholinesterase
H. M. Rubinstein, T. Lubrano, H. L. Mathews, C. F. Lange, S. Silberman, E. M. Adams, and J. Minowada

Maternal Effect and Embryonic Gene Expression for Lactate Dehydrogenase B (LDH-B), Glucose-6-Phosphate Dehydrogenase (G6PDH), and Peptidase (PEP-1) During the Development of *Pleurodeles waltl* (Urodele Amphibian)
F. Gasser and V. Ferrier

AUTHOR INDEX TO VOLUME 22

SUBJECT INDEX TO VOLUME 22

†NOTE